



009848-0276371

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:)	Group Art Unit: 1642
PETER KUFER, et al)	Examiner: NYA
Serial No.:)	
09/744,625)	
Filed:)	
JULY 16, 2001)	
Title:		HETEROMINIBODIES

STATEMENT TO SUPPORT FILING AND SUBMISSION
IN ACCORDANCE WITH 37 C.F.R. §1.821-1.825

United States Patent and Trademark Office
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Sir:

I hereby state that the content of the paper and computer readable copies of the Sequence Listing, submitted in accordance with 37 C.F.R. § 1.821(c), (e), (f) and (g), or § 1.825(d) and (b), respectively, are the same.

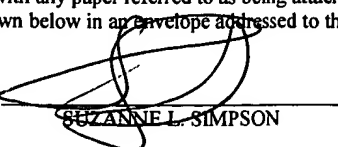
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Dated:

4/26/02

By:


SUZANNE L. SIMPSON

Applicant respectfully submits that the content of the sequence listing information recorded in computer readable form is identical to the written sequence listing and includes no new matter.

Respectfully submitted,

Pillsbury Winthrop LLP

By: _____

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SAN DIEGO, CA 92130

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

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Dated: 4/25/02

By: _____

SUZANNE L. SIMPSON



SEQUENCE LISTING

<110> Peter Kufer
Torsten Dreier
Patrick A. Baeuerle
Katrin Borschert
Florian Zettl

<120> Heterominibodies

<130> 009848/027 6371

<140> 09/744,625

<141> 2001-07-16

<150> EP 98 11 4082.5

<151> 1998-07-28

<160> 39

<170> PatentIn Ver. 2.1

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natural origin

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natural origin

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Ala Thr Gly Val His Ser Asp Ile Val Val Thr Gln Glu Ser Ala Leu
15 20 25

acc aca tca cct ggt gaa aca gtc aca ctc act tgt cgc tca agt act 145
Thr Thr Ser Pro Gly Glu Thr Val Thr Leu Thr Cys Arg Ser Ser Thr
30 35 40 45

ggg gct gtt aca act agt aac tat gcc aac tgg gtc caa gaa aaa cca 193
Gly Ala Val Thr Thr Ser Asn Tyr Ala Asn Trp Val Gln Glu Lys Pro
50 55 60

gat cat tta ttc act ggt cta ata ggt ggt acc aac aac cga gtt cca 241
Asp His Leu Phe Thr Gly Leu Ile Gly Gly Thr Asn Asn Arg Val Pro
65 70 75

ggt gtt cct gcc aga ttc tca ggc tcc ctg att gga gac aag gct gcc	289
Gly Val Pro Ala Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Ala	
80 85 90	
ctc acc atc aca ggg gca cag act gag gat gag gca ata tat ttc tgt	337
Leu Thr Ile Thr Gly Ala Gln Thr Glu Asp Glu Ala Ile Tyr Phe Cys	
95 100 105	
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Ala Leu Trp Tyr Ser Asn His Trp Val Phe Gly Gly Gly Thr Lys Leu	
110 115 120 125	
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Glu Val Leu Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly	
130 135 140	
ggt tct cag gtc cag ctg cag gag tct gga cct ggc ctg gtg gcg ccc	481
Gly Ser Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Ala Pro	
145 150 155	
tca cag agc ctg tcc atc aca tgc acc atc tca ggg ttc tca tta act	529
Ser Gln Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu Thr	
160 165 170	
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Lys Tyr Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu	
175 180 185	
tgg ctg gtg gtg ata tgg act gat gga ggc aca tcc tat aat tca gct	625
Trp Leu Val Val Ile Trp Thr Asp Gly Gly Thr Ser Tyr Asn Ser Ala	
190 195 200 205	
ctc aaa tcc aga ctg agc atc agc aag gac aac tcc aag agc caa gtt	673
Leu Lys Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val	
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Phe Leu Lys Met Asn Ser Leu Gln Thr Asp Asp Thr Ala Met Tyr Tyr	
225 230 235	
tgt gcc aga cag gat aga tac gac ggt gga att gct tac tgg ggc caa	769
Cys Ala Arg Gln Asp Arg Tyr Asp Gly Gly Ile Ala Tyr Trp Gly Gln	
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<212> PRT

<213> Mus musculus

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Leu	Ser	Ile	Thr	Cys	Thr	Ile	Ser	Gly	Phe	Ser	Leu	Thr	Lys	Tyr	Gly	
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Val	His	Trp	Val	Arg	Gln	Pro	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Leu	Val	
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Val	Ile	Trp	Thr	Asp	Gly	Gly	Thr	Ser	Tyr	Asn	Ser	Ala	Leu	Lys	Ser	
			195						200						205	
Arg	Leu	Ser	Ile	Ser	Lys	Asp	Asn	Ser	Lys	Ser	Gln	Val	Phe	Leu	Lys	
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Gln	Asp	Arg	Tyr	Asp	Gly	Gly	Ile	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	
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natural origin

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<222> (10)..(1359)

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aca ggt gta cac tcc gat atc cag ctg acc cag tct caa aaa ttc atg 99
Thr Gly Val His Ser Asp Ile Gln Leu Thr Gln Ser Gln Lys Phe Met
15 20 25 30

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Ser Thr Ser Val Gly Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln
35 40 45

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50 55 60

cct aaa gca ctg att tac tcg gca tcc tac cgg tac agt gga gtc cct 243
Pro Lys Ala Leu Ile Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro
65 70 75

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Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
80 85 90

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Ser Asn Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr	
95 100 105 110	
aac agc tat ccg ctc acg ttc ggt gct ggg acc aag ctc gag atc aaa	387
Asn Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys	
115 120 125	
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Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln	
130 135 140	
gtg aaa ctg cag gag tca gga cct ggc cta gtg cag ccc tca cag agc	483
Val Lys Leu Gln Glu Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser	
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gtg ata tgg agt ggt gga agc aca gac tat aat gca gct ttc ata tcc	627
Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Ala Ala Phe Ile Ser	
195 200 205	
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Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys	
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Met Glu Asn Trp Ser Phe Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr	
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gtc tcc gaa ttc ccc aaa cct agc acc ccc cct ggc agc agt ggt gaa	819
Val Ser Glu Phe Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Glu	
255 260 265 270	
ctg gaa gag ctg ctt aag cat ctt aaa gaa ctt ctg aag ggc ccc cgc	867
Leu Glu Glu Leu Leu Lys His Leu Lys Glu Leu Leu Lys Gly Pro Arg	
275 280 285	
aaa ggc gaa ctc gag gaa ctg ctg aaa cat ctg aag gag ctg ctt aaa	915
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290 295 300	
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Gly Gly Ser Gly Gly Ala Pro Ala Pro Thr Ser Ser Ser Thr Lys Lys	
305 310 315	
aca cag cta caa ctg gag cat tta ctg ctg gat tta cag atg att ttg	1011
Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu	
320 325 330	

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Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln	
355 360 365	
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Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala	
370 375 380	
caa agc aaa aac ttt cac tta aga ccc agg gac tta atc agc aat atc	1203
Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile	
385 390 395	
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Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys	
400 405 410	
gaa tat gct gat gag aca gca acc att gta gaa ttt ctg aac aga tgg	1299
Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp	
415 420 425 430	
att acc ttt tgt caa agc atc atc tca aca ctg act gac gtc cat cac	1347
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His His His His	
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20 25 30															
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Gly Thr Asn Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys															
50 55 60															
Ala Leu Ile Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg															
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Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn															
85 90 95															
Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Ser															
100 105 110															

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Ile	Thr	Cys	Thr	Val	Ser	Gly	Phe	Ser	Leu	Thr	Ser	Tyr	Gly	Val	His			165	170	175
Trp	Val	Arg	Gln	Ser	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Leu	Gly	Val	Ile			180	185	190
Trp	Ser	Gly	Gly	Ser	Thr	Asp	Tyr	Asn	Ala	Ala	Phe	Ile	Ser	Arg	Leu			195	200	205
Ser	Ile	Ser	Lys	Asp	Asn	Ser	Lys	Ser	Gln	Val	Phe	Phe	Lys	Met	Asn			210	215	220
Ser	Leu	Gln	Ala	Asn	Asp	Thr	Ala	Ile	Tyr	Tyr	Cys	Ala	Arg	Met	Glu			225	230	235
Asn	Trp	Ser	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser			245	250	255
Glu	Phe	Pro	Lys	Pro	Ser	Thr	Pro	Pro	Gly	Ser	Ser	Gly	Glu	Leu	Glu			260	265	270
Glu	Leu	Leu	Lys	His	Leu	Lys	Glu	Leu	Leu	Lys	Gly	Pro	Arg	Lys	Gly			275	280	285
Glu	Leu	Glu	Glu	Leu	Leu	Lys	His	Leu	Lys	Glu	Leu	Leu	Lys	Gly	Gly			290	295	300
Ser	Gly	Gly	Ala	Pro	Ala	Pro	Thr	Ser	Ser	Ser	Thr	Lys	Lys	Thr	Gln			305	310	315
Leu	Gln	Leu	Glu	His	Leu	Leu	Leu	Asp	Leu	Gln	Met	Ile	Leu	Asn	Gly			325	330	335
Ile	Asn	Asn	Tyr	Lys	Asn	Pro	Lys	Leu	Thr	Arg	Met	Leu	Thr	Phe	Lys			340	345	350
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Glu	Glu	Glu	Leu	Lys	Pro	Leu	Glu	Glu	Val	Leu	Asn	Leu	Ala	Gln	Ser			370	375	380
Lys	Asn	Phe	His	Leu	Arg	Pro	Arg	Asp	Leu	Ile	Ser	Asn	Ile	Asn	Val			385	390	395
Ile	Val	Leu	Glu	Leu	Lys	Gly	Ser	Glu	Thr	Thr	Phe	Met	Cys	Glu	Tyr			405	410	415
Ala	Asp	Glu	Thr	Ala	Thr	Ile	Val	Glu	Phe	Leu	Asn	Arg	Trp	Ile	Thr			420	425	430

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His His
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 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala
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aca ggt gta cac tcc gat atc cag ctg acc cag tct caa aaa ttc atg 99
 Thr Gly Val His Ser Asp Ile Gln Leu Thr Gln Ser Gln Lys Phe Met
 15 20 25 30

tcc aca tca gta gga gac agg gtc agc gtc acc tgc aag gcc agt cag 147
 Ser Thr Ser Val Gly Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln
 35 40 45

aat gtg ggt act aat gta gcc tgg tat caa cag aaa cca ggg caa tct 195
 Asn Val Gly Thr Asn Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser
 50 55 60

cct aaa gca ctg att tac tcg gca tcc tac cgg tac agt gga gtc cct 243
 Pro Lys Ala Leu Ile Tyr Ser Ser Tyr Arg Tyr Ser Gly Val Pro
 65 70 75

gat cgc ttc aca ggc agt gga tct ggg aca gat ttc act ctc acc atc 291
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 80 85 90

agc aat gtg cag tct gaa gac ttg gca gag tat ttc tgt cag caa tat 339
 Ser Asn Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr
 95 100 105 110

aac agc tat ccg ctc acg ttc ggt gct ggg acc aag ctc gag atc aaa 387
 Asn Ser Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys
 115 120 125

ggt ggt ggt ggt tct ggc ggc ggc ggc tcc ggt ggt ggt ggt tct cag 435
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln
 130 135 140

gtg aaa ctg cag gag tca gga cct ggc cta gtg cag ccc tca cag agc 483
 Val Lys Leu Gln Glu Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser
 145 150 155

ctg tcc atc acc tgc aca gtc tct ggt ttc tca tta act agc tat ggt	531
Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Ser Tyr Gly	
160 165 170	
gta cac tgg gtt cgc cag tct cca gga aag ggt ctg gag tgg ctg gga	579
Val His Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly	
175 180 185 190	
gtg ata tgg agt ggt gga agc aca gac tat aat gca gct ttc ata tcc	627
Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Ala Ala Phe Ile Ser	
195 200 205	
aga ctg agc atc agc aag gac aat tcc aag agc caa gtt ttc ttt aaa	675
Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Phe Lys	
210 215 220	
atg aac agt ctg caa gct aat gac aca gcc ata tat tac tgt gcc aga	723
Met Asn Ser Leu Gln Ala Asn Asp Thr Ala Ile Tyr Tyr Cys Ala Arg	
225 230 235	
atg gag aac tgg tcg ttt gct tac tgg ggc caa ggg acc acg gtc acc	771
Met Glu Asn Trp Ser Phe Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr	
240 245 250	
gtc tcc gaa ttc acc ccg ctg ggt gac acc acc cac acc tcc gga aaa	819
Val Ser Glu Phe Thr Pro Leu Gly Asp Thr Thr His Thr Ser Gly Lys	
255 260 265 270	
cca ctg gat gga gaa tat ttc acc ctt cag atc cgt ggg cgt gag cgc	867
Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu Arg	
275 280 285	
ttc gag atg ttc cga gag ctg aat gag gcc ttg gaa ctc aag gat gcc	915
Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp Ala	
290 295 300	
cag gct ggg aag gag cca ggg ggg agc gga ggc gcg ccg gca cct act	963
Gln Ala Gly Lys Glu Pro Gly Gly Ser Gly Gly Ala Pro Ala Pro Thr	
305 310 315	
tca agt tct aca aag aaa aca cag cta caa ctg gag cat tta ctg ctg	1011
Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu	
320 325 330	
gat tta cag atg att ttg aat gga att aat aat tac aag aat ccc aaa	1059
Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys	
335 340 345 350	
ctc acc agg atg ctc aca ttt aag ttt tac atg ccc aag aag gcc aca	1107
Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr	
355 360 365	
gaa ctg aaa cat ctt cag tgt cta gaa gaa gaa ctc aaa cct ctg gag	1155
Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu	
370 375 380	
gaa gtg cta aat tta gct caa agc aaa aac ttt cac tta aga ccc agg	1203
Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg	
385 390 395	

gac tta atc agc aat atc aac gta ata gtt ctg gaa cta aag gga tct 1251
 Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser
 400 405 410

gaa aca aca ttc atg tgt gaa tat gct gat gag aca gca acc att gta 1299
 Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val
 415 420 425 430

gaa ttt ctg aac aga tgg att acc ttt tgt caa agc atc atc tca aca 1347
 Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr
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 Leu Thr Asp Val His His His His His His
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<210> 33

<211> 456

<212> PRT

<213> Homo sapiens/Mus musculus

<400> 33

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Ser Val Gly Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val
 35 40 45

Gly Thr Asn Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys
 50 55 60

Ala Leu Ile Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg
 65 70 75 80

Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn
 85 90 95

Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys Gln Gln Tyr Asn Ser
 100 105 110

Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Gly Gly
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val Lys
 130 135 140

Leu Gln Glu Ser Gly Pro Gly Leu Val Gln Pro Ser Gln Ser Leu Ser
 145 150 155 160

Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Ser Tyr Gly Val His
 165 170 175

Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile
 180 185 190

Trp	Ser	Gly	Gly	Ser	Thr	Asp	Tyr	Asn	Ala	Ala	Phe	Ile	Ser	Arg	Leu	195	200	205
Ser	Ile	Ser	Lys	Asp	Asn	Ser	Lys	Ser	Gln	Val	Phe	Phe	Lys	Met	Asn	210	215	220
Ser	Leu	Gln	Ala	Asn	Asp	Thr	Ala	Ile	Tyr	Tyr	Cys	Ala	Arg	Met	Glu	225	230	235
Asn	Trp	Ser	Phe	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	245	250	255
Glu	Phe	Thr	Pro	Leu	Gly	Asp	Thr	Thr	His	Thr	Ser	Gly	Lys	Pro	Leu	260	265	270
Asp	Gly	Glu	Tyr	Phe	Thr	Leu	Gln	Ile	Arg	Gly	Arg	Glu	Arg	Phe	Glu	275	280	285
Met	Phe	Arg	Glu	Leu	Asn	Glu	Ala	Leu	Glu	Leu	Lys	Asp	Ala	Gln	Ala	290	295	300
Gly	Lys	Glu	Pro	Gly	Gly	Ser	Gly	Gly	Ala	Pro	Ala	Pro	Thr	Ser	Ser	305	310	315
Ser	Thr	Lys	Lys	Thr	Gln	Leu	Gln	Leu	Glu	His	Leu	Leu	Leu	Asp	Leu	325	330	335
Gln	Met	Ile	Leu	Asn	Gly	Ile	Asn	Asn	Tyr	Lys	Asn	Pro	Lys	Leu	Thr	340	345	350
Arg	Met	Leu	Thr	Phe	Lys	Phe	Tyr	Met	Pro	Lys	Lys	Ala	Thr	Glu	Leu	355	360	365
Lys	His	Leu	Gln	Cys	Leu	Glu	Glu	Glu	Leu	Lys	Pro	Leu	Glu	Glu	Val	370	375	380
Leu	Asn	Leu	Ala	Gln	Ser	Lys	Asn	Phe	His	Leu	Arg	Pro	Arg	Asp	Leu	385	390	395
Ile	Ser	Asn	Ile	Asn	Val	Ile	Val	Leu	Glu	Leu	Lys	Gly	Ser	Glu	Thr	405	410	415
Thr	Phe	Met	Cys	Glu	Tyr	Ala	Asp	Glu	Thr	Ala	Thr	Ile	Val	Glu	Phe	420	425	430
Leu	Asn	Arg	Trp	Ile	Thr	Phe	Cys	Gln	Ser	Ile	Ile	Ser	Thr	Leu	Thr	435	440	445
Asp	Val	His	His	His	His	His	His	His								450	455	

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 <211> 2871
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 <222> (10)..(2862)

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aca ggt gta cac tcc gat atc cag ctg acc cag tct cca gca atc atg 99
 Thr Gly Val His Ser Asp Ile Gln Leu Thr Gln Ser Pro Ala Ile Met
 15 20 25 30

tct gca tct cca ggg gaa aag gtc acc atg acc tgc agg gcc agc tca 147
 Ser Ala Ser Pro Gly Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser
 35 40 45

agt gtt agt tcc agt tac ttg cac tgg tac cag cag aag tca ggt gcc 195
 Ser Val Ser Ser Ser Tyr Leu His Trp Tyr Gln Gln Lys Ser Gly Ala
 50 55 60

tcc ccc aaa ctc tgg att tat agc aca tcc aac ttg gct tct gga gtc 243
 Ser Pro Lys Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val
 65 70 75

cct gct cgc ttc agt ggc agt ggg tct ggg acc tct tac tct ctc aca 291
 Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr
 80 85 90

atc agc agt gtg gag gct gaa gat gct gcc act tat tac tgc cag cag 339
 Ile Ser Ser Val Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln
 95 100 105 110

tac agt ggt tac ccg tac acg ttc gga ggg ggg acc aag ctc gag atc 387
 Tyr Ser Gly Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile
 115 120 125

aaa ggt ggt ggt ggt tct ggc ggc ggc ggc tcc ggt ggt ggt ggt tct 435
 Lys Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 130 135 140

cag gtg aaa ctg cag gag tct ggg gct gag ctt gtg aag cct ggg gct 483
 Gln Val Lys Leu Gln Glu Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
 145 150 155

tca gtg aag ctg tcc tgc aag gct tct ggc tac acc ctc acc agc tac 531
 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Leu Thr Ser Tyr
 160 165 170

tgg ttg cac tgg gtg aag cag tgg cct gga cga ggc ctt gag tgg att 579
 Trp Leu His Trp Val Lys Gln Trp Pro Gly Arg Gly Leu Glu Trp Ile
 175 180 185 190

gga agg att gat ccc aat agt ggt ggt act aag tac gat gag aag ttc 627

Gly	Arg	Ile	Asp	Pro	Asn	Ser	Gly	Gly	Thr	Lys	Tyr	Asp	Glu	Lys	Phe	
				195					200					205		
aag	agc	aag	gcc	aca	ctg	act	gta	gac	aaa	ccc	tcc	agc	aca	gcc	tac	675
Lys	Ser	Lys	Ala	Thr	Leu	Thr	Val	Asp	Lys	Pro	Ser	Ser	Thr	Ala	Tyr	
			210					215					220			
atg	cag	ctc	agc	agc	ctg	aca	tct	gag	gac	tct	gcg	gtc	tat	tat	tgt	723
Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val	Tyr	Tyr	Cys	
		225					230					235				
gca	aga	tgg	gac	tac	tgg	ggc	caa	ggg	acc	acg	gtc	acc	gtc	tcc	tcc	771
Ala	Arg	Trp	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	
	240					245					250					
gga	acc	ccg	ctg	ggc	gac	acc	acc	cac	act	agt	gga	aaa	cca	ctg	gat	819
Gly	Thr	Pro	Leu	Gly	Asp	Thr	Thr	His	Thr	Ser	Gly	Lys	Pro	Leu	Asp	
255					260					265					270	
gga	gaa	tat	ttc	acc	ctt	cag	atc	cgt	ggg	cgt	gag	cgc	ttc	gag	atg	867
Gly	Glu	Tyr	Phe	Thr	Leu	Gln	Ile	Arg	Gly	Arg	Glu	Arg	Phe	Glu	Met	
			275					280					285			
ttc	cga	gag	ctg	aat	gag	gcc	ttg	gaa	ctc	aag	gat	gcc	cag	gct	ggg	915
Phe	Arg	Glu	Leu	Asn	Glu	Ala	Leu	Glu	Leu	Lys	Asp	Ala	Gln	Ala	Gly	
			290				295						300			
aag	gag	cca	ggg	ggg	tcc	gga	ggc	ggc	ggc	agg	acc	caa	gtg	tgc	acc	963
Lys	Glu	Pro	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Thr	Gln	Val	Cys	Thr	
		305				310						315				
ggc	aca	gac	atg	aag	ctg	cgg	ctc	cct	gcc	agt	ccc	gag	acc	cac	ctg	1011
Gly	Thr	Asp	Met	Lys	Leu	Arg	Leu	Pro	Ala	Ser	Pro	Glu	Thr	His	Leu	
	320					325					330					
gac	atg	ctc	cgc	cac	ctc	tac	cag	ggc	tgc	cag	gtg	gtg	cag	gga	aac	1059
Asp	Met	Leu	Arg	His	Leu	Tyr	Gln	Gly	Cys	Gln	Val	Val	Gln	Gly	Asn	
335					340				345						350	
ctg	gaa	ctc	acc	tac	ctg	ccc	acc	aat	gcc	agc	ctg	tcc	ttc	ctg	cag	1107
Leu	Glu	Leu	Thr	Tyr	Leu	Pro	Thr	Asn	Ala	Ser	Leu	Ser	Phe	Leu	Gln	
				355				360					365			
gat	atc	cag	gag	gtg	cag	ggc	tac	gtg	ctc	atc	gct	cac	aac	caa	gtg	1155
Asp	Ile	Gln	Glu	Val	Gln	Gly	Tyr	Val	Leu	Ile	Ala	His	Asn	Gln	Val	
		370					375					380				
agg	cag	gtc	cca	ctg	cag	agg	ctg	cgg	att	gtg	cga	ggc	acc	cag	ctc	1203
Arg	Gln	Val	Pro	Leu	Gln	Arg	Leu	Arg	Ile	Val	Arg	Gly	Thr	Gln	Leu	
		385				390						395				
ttt	gag	gac	aac	tat	gcc	ctg	gcc	gtg	cta	gac	aat	gga	gac	ccg	ctg	1251
Phe	Glu	Asp	Asn	Tyr	Ala	Leu	Ala	Val	Leu	Asp	Asn	Gly	Asp	Pro	Leu	
	400				405						410					
aac	aat	acc	acc	cct	gtc	aca	ggg	gcc	tcc	cca	gga	ggc	ctg	cgg	gag	1299
Asn	Asn	Thr	Thr	Pro	Val	Thr	Gly	Ala	Ser	Pro	Gly	Gly	Leu	Arg	Glu	
415				420					425						430	

ctg cag ctt cga agc ctc aca gag atc ttg aaa gga ggg gtc ttg atc	1347
Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile	
435 440 445	
cag cgg aac ccc cag ctc tgc tac cag gac acg att ttg tgg aag gac	1395
Gln Arg Asn Pro Gln Leu Cys Tyr Gln Asp Thr Ile Leu Trp Lys Asp	
450 455 460	
atc ttc cac aag aac aac cag ctg gct ctc aca ctg ata gac acc aac	1443
Ile Phe His Lys Asn Asn Gln Leu Ala Leu Thr Leu Ile Asp Thr Asn	
465 470 475	
cgc tct cgg gcc tgc cac ccc tgt tct ccg atg tgt aag ggc tcc cgc	1491
Arg Ser Arg Ala Cys His Pro Cys Ser Pro Met Cys Lys Gly Ser Arg	
480 485 490	
tgc tgg gga gag agt tct gag gat tgt cag agc ctg acg cgc act gtc	1539
Cys Trp Gly Glu Ser Ser Glu Asp Cys Gln Ser Leu Thr Arg Thr Val	
495 500 505 510	
tgt gcc ggt ggc tgt gcc cgc tgc aag ggg cca ctg ccc act gac tgc	1587
Cys Ala Gly Gly Cys Ala Arg Cys Lys Gly Pro Leu Pro Thr Asp Cys	
515 520 525	
tgc cat gag cag tgt gct gcc ggc tgc acg ggc ccc aag cac tct gac	1635
Cys His Glu Gln Cys Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp	
530 535 540	
tgc ctg gcc tgc ctc cac ttc aac cac agt ggc atc tgt gag ctg cac	1683
Cys Leu Ala Cys Leu His Phe Asn His Ser Gly Ile Cys Glu Leu His	
545 550 555	
tgc cca gcc ctg gtc acc tac aac aca gac acg ttt gag tcc atg ccc	1731
Cys Pro Ala Leu Val Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Pro	
560 565 570	
aat ccc gag ggc cgg tat aca ttc ggc gcc agc tgt gtg act gcc tgt	1779
Asn Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser Cys Val Thr Ala Cys	
575 580 585 590	
ccc tac aac tac ctt tct acg gac gtg gga tcc tgc acc ctc gtc tgc	1827
Pro Tyr Asn Tyr Leu Ser Thr Asp Val Gly Ser Cys Thr Leu Val Cys	
595 600 605	
ccc ctg cac aac caa gag gtg aca gca gag gat gga aca cag cgg tgt	1875
Pro Leu His Asn Gln Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys	
610 615 620	
gag aag tgc agc aag ccc tgt gcc cga gtg tgc tat ggt ctg ggc atg	1923
Glu Lys Cys Ser Lys Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met	
625 630 635	
gag cac ttg cga gag gtg agg gca gtt acc agt gcc aat atc cag gag	1971
Glu His Leu Arg Glu Val Arg Ala Val Thr Ser Ala Asn Ile Gln Glu	
640 645 650	
ttt gct ggc tgc aag aag atc ttt ggg agc ctg gca ttt ctg ccg gag	2019
Phe Ala Gly Cys Lys Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu	
655 660 665 670	

agc ttt gat ggg gac cca gcc tcc aac act gcc ccg ctc cag cca gag	2067
Ser Phe Asp Gly Asp Pro Ala Ser Asn Thr Ala Pro Leu Gln Pro Glu	
675 680 685	
cag ctc caa gtg ttt gag act ctg gaa gag atc aca ggt tac cta tac	2115
Gln Leu Gln Val Phe Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr	
690 695 700	
atc tca gca tgg ccg gac agc ctg cct gac ctc agc gtc ttc cag aac	2163
Ile Ser Ala Trp Pro Asp Ser Leu Pro Asp Leu Ser Val Phe Gln Asn	
705 710 715	
ctg caa gta atc cgg gga cga att ctg cac aat ggc gcc tac tcg ctg	2211
Leu Gln Val Ile Arg Gly Arg Ile Leu His Asn Gly Ala Tyr Ser Leu	
720 725 730	
acc ctg caa ggg ctg ggc atc agc tgg ctg ggg ctg cgc tca ctg agg	2259
Thr Leu Gln Gly Leu Ile Ser Trp Leu Gly Leu Arg Ser Leu Arg	
735 740 745 750	
gaa ctg ggc agt gga ctg gcc ctc atc cac cat aac acc cac ctc tgc	2307
Glu Leu Gly Ser Gly Leu Ala Leu Ile His His Asn Thr His Leu Cys	
755 760 765	
ttc gtg cac acg gtg ccc tgg gac cag ctc ttt cgg aac ccg cac caa	2355
Phe Val His Thr Val Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln	
770 775 780	
gct ctg ctc cac act gcc aac cgg cca gag gac gag tgt gtg ggc gag	2403
Ala Leu Leu His Thr Ala Asn Arg Pro Glu Asp Glu Cys Val Gly Glu	
785 790 795	
ggc ctg gcc tgc cac cag ctg tgc gcc cga ggg cac tgc tgg ggt cca	2451
Gly Leu Ala Cys His Gln Leu Cys Ala Arg Gly His Cys Trp Gly Pro	
800 805 810	
ggg ccc acc cag tgt gtc aac tgc agc cag ttc ctt cgg ggc cag gag	2499
Gly Pro Thr Gln Cys Val Asn Cys Ser Gln Phe Leu Arg Gly Gln Glu	
815 820 825 830	
tgc gtg gag gaa tgc cga gta ctg cag ggg ctc ccc agg gag tat gtg	2547
Cys Val Glu Glu Cys Arg Val Leu Gln Gly Leu Pro Arg Glu Tyr Val	
835 840 845	
aat gcc agg cac tgt ttg ccg tgc cac cct gag tgt cag ccc cag aat	2595
Asn Ala Arg His Cys Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn	
850 855 860	
ggc tca gtg acc tgt ttt gga ccg gag gct gac cag tgt gtg gcc tgt	2643
Gly Ser Val Thr Cys Phe Gly Pro Glu Ala Asp Gln Cys Val Ala Cys	
865 870 875	
gcc cac tat aag gac cct ccc ttc tgc gtg gcc cgc tgc ccc agc ggt	2691
Ala His Tyr Lys Asp Pro Phe Cys Val Ala Arg Cys Pro Ser Gly	
880 885 890	
gtg aaa cct gac ctc tcc tac atg ccc atc tgg aag ttt cca gat gag	2739
Val Lys Pro Asp Leu Ser Tyr Met Pro Ile Trp Lys Phe Pro Asp Glu	
895 900 905 910	

gag ggc gca tgc cag cct tgc ccc atc aac tgc acc cac tcc tgt gtg 2787
 Glu Gly Ala Cys Gln Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val
 915 920 925

gac ctg gat gac aag ggc tgc ccc gcc gag cag aga gcc agc cct ctg 2835
 Asp Leu Asp Asp Lys Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Leu
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acg tcc ggg cat cat cac cat cat cat tgagtcgac 2871
 Thr Ser Gly His His His His His His
 945 950

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 35 40 45
 Ser Ser Ser Tyr Leu His Trp Tyr Gln Gln Lys Ser Gly Ala Ser Pro
 50 55 60
 Lys Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala
 65 70 75 80
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser
 85 90 95
 Ser Val Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser
 100 105 110
 Gly Tyr Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Gly
 115 120 125
 Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gln Val
 130 135 140
 Lys Leu Gln Glu Ser Gly Ala Glu Leu Val Lys Pro Gly Ala Ser Val
 145 150 155 160
 Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Leu Thr Ser Tyr Trp Leu
 165 170 175
 His Trp Val Lys Gln Trp Pro Gly Arg Gly Leu Glu Trp Ile Gly Arg
 180 185 190
 Ile Asp Pro Asn Ser Gly Gly Thr Lys Tyr Asp Glu Lys Phe Lys Ser
 195 200 205

Lys Ala Thr Leu Thr Val Asp Lys Pro Ser Ser Thr Ala Tyr Met Gln
 210 215 220
 Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg
 225 230 235 240
 Trp Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Thr
 245 250 255
 Pro Leu Gly Asp Thr Thr His Thr Ser Gly Lys Pro Leu Asp Gly Glu
 260 265 270
 Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu Arg Phe Glu Met Phe Arg
 275 280 285
 Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp Ala Gln Ala Gly Lys Glu
 290 295 300
 Pro Gly Gly Ser Gly Gly Gly Gly Ser Thr Gln Val Cys Thr Gly Thr
 305 310 315 320
 Asp Met Lys Leu Arg Leu Pro Ala Ser Pro Glu Thr His Leu Asp Met
 325 330 335
 Leu Arg His Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu
 340 345 350
 Leu Thr Tyr Leu Pro Thr Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile
 355 360 365
 Gln Glu Val Gln Gly Tyr Val Leu Ile Ala His Asn Gln Val Arg Gln
 370 375 380
 Val Pro Leu Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu
 385 390 395 400
 Asp Asn Tyr Ala Leu Ala Val Leu Asp Asn Gly Asp Pro Leu Asn Asn
 405 410 415
 Thr Thr Pro Val Thr Gly Ala Ser Pro Gly Gly Leu Arg Glu Leu Gln
 420 425 430
 Leu Arg Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Gln Arg
 435 440 445
 Asn Pro Gln Leu Cys Tyr Gln Asp Thr Ile Leu Trp Lys Asp Ile Phe
 450 455 460
 His Lys Asn Asn Gln Leu Ala Leu Thr Leu Ile Asp Thr Asn Arg Ser
 465 470 475 480
 Arg Ala Cys His Pro Cys Ser Pro Met Cys Lys Gly Ser Arg Cys Trp
 485 490 495
 Gly Glu Ser Ser Glu Asp Cys Gln Ser Leu Thr Arg Thr Val Cys Ala
 500 505 510
 Gly Gly Cys Ala Arg Cys Lys Gly Pro Leu Pro Thr Asp Cys Cys His
 515 520 525

Glu	Gln	Cys	Ala	Ala	Gly	Cys	Thr	Gly	Pro	Lys	His	Ser	Asp	Cys	Leu	530	535	540	
Ala	Cys	Leu	His	Phe	Asn	His	Ser	Gly	Ile	Cys	Glu	Leu	His	Cys	Pro	545	550	555	560
Ala	Leu	Val	Thr	Tyr	Asn	Thr	Asp	Thr	Phe	Glu	Ser	Met	Pro	Asn	Pro	565	570	575	
Glu	Gly	Arg	Tyr	Thr	Phe	Gly	Ala	Ser	Cys	Val	Thr	Ala	Cys	Pro	Tyr	580	585	590	
Asn	Tyr	Leu	Ser	Thr	Asp	Val	Gly	Ser	Cys	Thr	Leu	Val	Cys	Pro	Leu	595	600	605	
His	Asn	Gln	Glu	Val	Thr	Ala	Glu	Asp	Gly	Thr	Gln	Arg	Cys	Glu	Lys	610	615	620	
Cys	Ser	Lys	Pro	Cys	Ala	Arg	Val	Cys	Tyr	Gly	Leu	Gly	Met	Glu	His	625	630	635	640
Leu	Arg	Glu	Val	Arg	Ala	Val	Thr	Ser	Ala	Asn	Ile	Gln	Glu	Phe	Ala	645	650	655	
Gly	Cys	Lys	Lys	Ile	Phe	Gly	Ser	Leu	Ala	Phe	Leu	Pro	Glu	Ser	Phe	660	665	670	
Asp	Gly	Asp	Pro	Ala	Ser	Asn	Thr	Ala	Pro	Leu	Gln	Pro	Glu	Gln	Leu	675	680	685	
Gln	Val	Phe	Glu	Thr	Leu	Glu	Glu	Ile	Thr	Gly	Tyr	Leu	Tyr	Ile	Ser	690	695	700	
Ala	Trp	Pro	Asp	Ser	Leu	Pro	Asp	Leu	Ser	Val	Phe	Gln	Asn	Leu	Gln	705	710	715	720
Val	Ile	Arg	Gly	Arg	Ile	Leu	His	Asn	Gly	Ala	Tyr	Ser	Leu	Thr	Leu	725	730	735	
Gln	Gly	Leu	Gly	Ile	Ser	Trp	Leu	Gly	Leu	Arg	Ser	Leu	Arg	Glu	Leu	740	745	750	
Gly	Ser	Gly	Leu	Ala	Leu	Ile	His	His	Asn	Thr	His	Leu	Cys	Phe	Val	755	760	765	
His	Thr	Val	Pro	Trp	Asp	Gln	Leu	Phe	Arg	Asn	Pro	His	Gln	Ala	Leu	770	775	780	
Leu	His	Thr	Ala	Asn	Arg	Pro	Glu	Asp	Glu	Cys	Val	Gly	Glu	Gly	Leu	785	790	795	800
Ala	Cys	His	Gln	Leu	Cys	Ala	Arg	Gly	His	Cys	Trp	Gly	Pro	Gly	Pro	805	810	815	
Thr	Gln	Cys	Val	Asn	Cys	Ser	Gln	Phe	Leu	Arg	Gly	Gln	Glu	Cys	Val	820	825	830	
Glu	Glu	Cys	Arg	Val	Leu	Gln	Gly	Leu	Pro	Arg	Glu	Tyr	Val	Asn	Ala	835	840	845	

Arg His Cys Leu Pro Cys His Pro Glu Cys Gln Pro Gln Asn Gly Ser
 850 855 860
 Val Thr Cys Phe Gly Pro Glu Ala Asp Gln Cys Val Ala Cys Ala His
 865 870 875 880
 Tyr Lys Asp Pro Pro Phe Cys Val Ala Arg Cys Pro Ser Gly Val Lys
 885 890 895
 Pro Asp Leu Ser Tyr Met Pro Ile Trp Lys Phe Pro Asp Glu Glu Gly
 900 905 910
 Ala Cys Gln Pro Cys Pro Ile Asn Cys Thr His Ser Cys Val Asp Leu
 915 920 925
 Asp Asp Lys Gly Cys Pro Ala Glu Gln Arg Ala Ser Pro Leu Thr Ser
 930 935 940
 Gly His His His His His His
 945 950

<210> 36
 <211> 1630
 <212> DNA
 <213> Homo sapiens/Mus musculus

<220>
 <221> CDS
 <222> (39)..(1607)

<400> 36
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 Met Gly Trp Ser Cys Ile
 1 5
 atc ctc ttc ttg gta gca aca gct aca ggt gta cac tcc gag ctc cag 104
 Ile Leu Phe Leu Val Ala Thr Ala Thr Gly Val His Ser Glu Leu Gln
 10 15 20
 atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga gtc 152
 Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val
 25 30 35
 acc atc act tgc cgg gca agt cag agc att agc agc tat tta aat tgg 200
 Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn Trp
 40 45 50
 tat cag cag aaa cca gga cag cct cct aag ctg ctc att tac tgg gca 248
 Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala
 55 60 65 70
 tct acc cgg gaa tcc ggg gtc cct gac cga ttc agc ggc agt gaa tct 296
 Ser Thr Arg Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Glu Ser
 75 80 85
 ggg aca aat tac act ctc acc atc agc agc ctg cag cct gaa gat ttt 344
 Gly Thr Asn Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe
 90 95 100

gct act tac ttt tgt caa cag tct gac agt ttg ccg atc acc ttc ggc	392
Ala Thr Tyr Phe Cys Gln Gln Ser Asp Ser Leu Pro Ile Thr Phe Gly	
105 110 115	
caa ggg aca cga ctg gac att caa gga gga gga gga tca ggt ggt ggt	440
Gln Gly Thr Arg Leu Asp Ile Gln Gly Gly Gly Gly Ser Gly Gly Gly	
120 125 130	
ggc agc ggc ggc ggc ggc tca gag gtg cag ctg ctc gag tct ggg gga	488
Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Leu Glu Ser Gly Gly	
135 140 145 150	
ggc gtg gtc cag cct ggg agg tcc ctg aga ctc tcc tgt gca gcc tct	536
Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser	
155 160 165	
gga ttc acc ttc agt agc tat ggc atg cac tgg gtc cgc cag gct cca	584
Gly Phe Thr Phe Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro	
170 175 180	
ggc aag ggg ctg gag tgg gtg gca gtt ata tca tat gat gga agt aat	632
Gly Lys Gly Leu Glu Trp Val Ala Val Ile Ser Tyr Asp Gly Ser Asn	
185 190 195	
aaa tac tat gca gac tcc gtg aag ggc cga ttc acc atc tcc aga gac	680
Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp	
200 205 210	
aat tcc aag aac acg ctg tat ctg caa atg aac agc ctg aga gct gag	728
Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu	
215 220 225 230	
gac acg gct gtg tat tac tgt gcg aaa gat atg ggg tgg ggc agt ggc	776
Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Met Gly Trp Gly Ser Gly	
235 240 245	
tgg aga ccc tac tac tac tac ggt atg gac gtc tgg ggc caa ggg acc	824
Trp Arg Pro Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr	
250 255 260	
acg gtc acc gtc tcc tcc gga acc ccg ctg ggt gac acc acc cac acc	872
Thr Val Thr Val Ser Ser Gly Thr Pro Leu Gly Asp Thr Thr His Thr	
265 270 275	
gct agc acc aag ggc cca tcg gtc ttc ccc ctg gca ccc tcc tcc aag	920
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys	
280 285 290	
agc acc tct ggg ggc aca gcg gcc ctg ggc tgc ctg gtc aag gac tac	968
Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr	
295 300 305 310	
ttc ccc gaa ccg gtg acg gtg tcg tgg aac tca ggc gcc ctg acc agc	1016
Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser	
315 320 325	
ggc gtg cac acc ttc ccg gct gtc cta cag tcc tca gga ctc tac tcc	1064
Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser	
330 335 340	

ctc agc agc gtg gtg acc gtg ccc tcc agc agc ttg ggc acc cag acc	1112
Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr	
345 350 355	
tac atc tgc aac gtg aat cac aag ccc agc aac acc aag gtg gac aag	1160
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys	
360 365 370	
aaa gtt gag ccc aaa tct tgt gac aaa act agt gga ggc ggt ggg tcc	1208
Lys Val Glu Pro Lys Ser Cys Asp Lys Thr Ser Gly Gly Gly Gly Ser	
375 380 385 390	
gca ccc gcc cgc tgc ccc agc ccc agc acg cag ccc tgg gag cat gtg	1256
Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His Val	
395 400 405	
aat gcc atc cag gag gcc cgg cgt ctc ctg aac ctg agt aga gac act	1304
Asn Ala Ile Gln Glu Ala Arg Arg Leu Leu Asn Leu Ser Arg Asp Thr	
410 415 420	
gct gct gag atg aat gaa aca gta gaa gtc atc tca gaa atg ttt gac	1352
Ala Ala Glu Met Asn Glu Thr Val Glu Val Ile Ser Glu Met Phe Asp	
425 430 435	
ctc cag gag ccg acc tgc cta cag acc cgc ctg gag ctg tac aag cag	1400
Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg Leu Glu Leu Tyr Lys Gln	
440 445 450	
ggc ctg cgg ggc agc ctc acc aag ctc aag ggc ccc ttg acc atg atg	1448
Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro Leu Thr Met Met	
455 460 465 470	
gcc agc cac tac aag cag cac tgc cct cca acc ccg gaa act tcc tgt	1496
Ala Ser His Tyr Lys Gln His Cys Pro Pro Thr Pro Glu Thr Ser Cys	
475 480 485	
gca acc cag att atc acc ttt gaa agt ttc aaa gag aac ctg aag gac	1544
Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys Asp	
490 495 500	
ttt ctg ctt gtc atc ccc ttt gac tgc tgg gag cca gtc cag gag cat	1592
Phe Leu Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu His	
505 510 515	
cat cac cat cat cat tgagtcgact taaaacagct ctg	1630
His His His His	
520	

<210> 37

<211> 523

<212> PRT

<213> Homo sapiens/Mus musculus

<400> 37

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
1 5 10 15

Val	His	Ser	Glu	Leu	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	
			20					25					30			
Ser	Val	Gly	Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Ser	Ile	
		35					40					45				
Ser	Ser	Tyr	Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	Lys	
		50				55					60					
Leu	Leu	Ile	Tyr	Trp	Ala	Ser	Thr	Arg	Glu	Ser	Gly	Val	Pro	Asp	Arg	
65					70					75					80	
Phe	Ser	Gly	Ser	Glu	Ser	Gly	Thr	Asn	Tyr	Thr	Leu	Thr	Ile	Ser	Ser	
				85					90					95		
Leu	Gln	Pro	Glu	Asp	Phe	Ala	Thr	Tyr	Phe	Cys	Gln	Gln	Ser	Asp	Ser	
			100					105					110			
Leu	Pro	Ile	Thr	Phe	Gly	Gln	Gly	Thr	Arg	Leu	Asp	Ile	Gln	Gly	Gly	
		115					120					125				
Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Glu	Val	Gln	
		130				135						140				
Leu	Leu	Glu	Ser	Gly	Gly	Gly	Val	Val	Gln	Pro	Gly	Arg	Ser	Leu	Arg	
145					150					155					160	
Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Ser	Tyr	Gly	Met	His	
			165						170					175		
Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	Ala	Val	Ile	
			180					185					190			
Ser	Tyr	Asp	Gly	Ser	Asn	Lys	Tyr	Tyr	Ala	Asp	Ser	Val	Lys	Gly	Arg	
		195				200						205				
Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr	Leu	Gln	Met	
		210				215					220					
Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Lys	Asp	
225					230					235					240	
Met	Gly	Trp	Gly	Ser	Gly	Trp	Arg	Pro	Tyr	Tyr	Tyr	Tyr	Gly	Met	Asp	
			245						250					255		
Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Thr	Pro	Leu	
			260					265					270			
Gly	Asp	Thr	Thr	His	Thr	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	
		275					280					285				
Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	
		290				295					300					
Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	
305					310					315					320	
Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	
			325						330					335		

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
 340 345 350

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
 355 360 365

Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr
 370 375 380

Ser Gly Gly Gly Gly Ser Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr
 385 390 395 400

Gln Pro Trp Glu His Val Asn Ala Ile Gln Glu Ala Arg Arg Leu Leu
 405 410 415

Asn Leu Ser Arg Asp Thr Ala Ala Glu Met Asn Glu Thr Val Glu Val
 420 425 430

Ile Ser Glu Met Phe Asp Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg
 435 440 445

Leu Glu Leu Tyr Lys Gln Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys
 450 455 460

Gly Pro Leu Thr Met Met Ala Ser His Tyr Lys Gln His Cys Pro Pro
 465 470 475 480

Thr Pro Glu Thr Ser Cys Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe
 485 490 495

Lys Glu Asn Leu Lys Asp Phe Leu Leu Val Ile Pro Phe Asp Cys Trp
 500 505 510

Glu Pro Val Gln Glu His His His His His His
 515 520

<210> 38

<211> 1630

<212> DNA

<213> Homo sapiens/Mus musculus

<220>

<221> CDS

<222> (39)..(1610)

<400> 38

tttttttctt ccatttcagg tgctgtgagg aattcacc atg gga tgg agc tgt atc 56
 Met Gly Trp Ser Cys Ile
 1 5

atc ctc ttc ttg gta gca aca gct aca ggt gta cac tcc gag ctc cag 104
 Ile Leu Phe Leu Val Ala Thr Ala Thr Gly Val His Ser Glu Leu Gln
 10 15 20

atg acc cag tct cca tcc tcc ctg tct gca tct gta gga gac aga gtc 152
 Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val
 25 30 35

acc atc act tgc cgg gca agt cag agc att agc agc tat tta aat tgg	200
Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn Trp	
40 45 50	
tat cag cag aaa cca gga cag cct cct aag ctg ctc att tac tgg gca	248
Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala	
55 60 65 70	
tct acc cgg gaa tcc ggg gtc cct gac cga ttc agc ggc agt gaa tct	296
Ser Thr Arg Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Glu Ser	
75 80 85	
ggg aca aat tac act ctc acc atc agc agc ctg cag cct gaa gat ttt	344
Gly Thr Asn Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe	
90 95 100	
gct act tac ttt tgt caa cag tct gac agt ttg ccg atc acc ttc ggc	392
Ala Thr Tyr Phe Cys Gln Gln Ser Asp Ser Leu Pro Ile Thr Phe Gly	
105 110 115	
caa ggg aca cga ctg gac att caa gga gga gga gga tca ggt ggt ggt	440
Gln Gly Thr Arg Leu Asp Ile Gln Gly Gly Gly Gly Ser Gly Gly Gly	
120 125 130	
ggg agc ggc ggc ggc ggc tca gag gtg cag ctg ctc gag tct ggg gga	488
Gly Ser Gly Gly Gly Gly Ser Glu Val Gln Leu Leu Glu Ser Gly Gly	
135 140 145 150	
ggc gtg gtc cag cct ggg agg tcc ctg aga ctc tcc tgt gca gcc tct	536
Gly Val Val Gln Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser	
155 160 165	
gga ttc acc ttc agt agc tat ggc atg cac tgg gtc cgc cag gct cca	584
Gly Phe Thr Phe Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro	
170 175 180	
ggc aag ggg ctg gag tgg gtg gca gtt ata tca tat gat gga agt aat	632
Gly Lys Gly Leu Glu Trp Val Ala Val Ile Ser Tyr Asp Gly Ser Asn	
185 190 195	
aaa tac tat gca gac tcc gtg aag ggc cga ttc acc atc tcc aga gac	680
Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp	
200 205 210	
aat tcc aag aac acg ctg tat ctg caa atg aac agc ctg aga gct gag	728
Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu	
215 220 225 230	
gac acg gct gtg tat tac tgt gcg aaa gat atg ggg tgg ggc agt ggc	776
Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp Met Gly Trp Gly Ser Gly	
235 240 245	
tgg aga ccc tac tac tac tac ggt atg gac gtc tgg ggc caa ggg acc	824
Trp Arg Pro Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr	
250 255 260	
acg gtc acc gtc tcc tcc gga acc ccg ctg ggt gac acc acc cac acc	872
Thr Val Thr Val Ser Ser Gly Thr Pro Leu Gly Asp Thr Thr His Thr	
265 270 275	

cgt acg gtg gct gca cca tct gtc ttc atc ttc ccg cca tct gat gag	920
Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu	
280 285 290	
cag ttg aaa tct gga act gcc tct gtt gtg tgc ctg ctg aat aac ttc	968
Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe	
295 300 305 310	
tat ccc aga gag gcc aaa gta cag tgg aag gtg gat aac gcc ctc caa	1016
Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln	
315 320 325	
tcg ggt aac tcc cag gag agt gtc aca gag cag gac agc aag gac agc	1064
Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser	
330 335 340	
acc tac agc ctc agc agc acc ctg acg ctg agc aaa gca gac tac gag	1112
Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu	
345 350 355	
aaa cac aaa gtc tac gcc tgc gaa gtc acc cat cag ggc ctg agc tcg	1160
Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser	
360 365 370	
ccc gtc aca aag agc ttc aac agg gga gag tgt tca gga ggc ggt ggg	1208
Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys Ser Gly Gly Gly Gly	
375 380 385 390	
tct gca cct act tca agt tct aca aag aaa aca cag cta caa ctg gag	1256
Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu	
395 400 405	
cat tta ctg ctg gat tta cag atg att ttg aat gga att aat aat tac	1304
His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr	
410 415 420	
aag aat ccc aaa ctc acc agg atg ctc aca ttt aag ttt tac atg ccc	1352
Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro	
425 430 435	
aag aag gcc aca gaa ctg aaa cat ctt cag tgt cta gaa gaa gaa ctc	1400
Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu	
440 445 450	
aaa cct ctg gag gaa gtg cta aat tta gct caa agc aaa aac ttt cac	1448
Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His	
455 460 465 470	
tta aga ccc agg gac tta atc agc aat atc aac gta ata gtt ctg gaa	1496
Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu	
475 480 485	
cta aag gga tct gaa aca aca ttc atg tgt gaa tat gct gat gag aca	1544
Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr	
490 495 500	
gca acc att gta gaa ttt ctg aac aga tgg att acc ttt tgt caa agc	1592
Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser	
505 510 515	

atc atc tca aca cta act tgataagtcg acttaaaaca
 Ile Ile Ser Thr Leu Thr
 520

1630

<210> 39
 <211> 524
 <212> PRT
 <213> Homo sapiens/Mus musculus

<400> 39
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15
 Val His Ser Glu Leu Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 20 25 30
 Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile
 35 40 45
 Ser Ser Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro Lys
 50 55 60
 Leu Leu Ile Tyr Trp Ala Ser Thr Arg Glu Ser Gly Val Pro Asp Arg
 65 70 75 80
 Phe Ser Gly Ser Glu Ser Gly Thr Asn Tyr Thr Leu Thr Ile Ser Ser
 85 90 95
 Leu Gln Pro Glu Asp Phe Ala Thr Tyr Phe Cys Gln Gln Ser Asp Ser
 100 105 110
 Leu Pro Ile Thr Phe Gly Gln Gly Thr Arg Leu Asp Ile Gln Gly Gly
 115 120 125
 Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Glu Val Gln
 130 135 140
 Leu Leu Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg Ser Leu Arg
 145 150 155 160
 Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr Gly Met His
 165 170 175
 Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Val Ile
 180 185 190
 Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val Lys Gly Arg
 195 200 205
 Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu Gln Met
 210 215 220
 Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala Lys Asp
 225 230 235 240
 Met Gly Trp Gly Ser Gly Trp Arg Pro Tyr Tyr Tyr Tyr Gly Met Asp
 245 250 255

Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Thr	Pro	Leu	260	265	270	
Gly	Asp	Thr	Thr	His	Thr	Arg	Thr	Val	Ala	Ala	Pro	Ser	Val	Phe	Ile	275	280	285	
Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	290	295	300	
Cys	Leu	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	305	310	315	320
Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	325	330	335	
Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	340	345	350	
Ser	Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	355	360	365	
His	Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	370	375	380	
Cys	Ser	Gly	Gly	Gly	Gly	Ser	Ala	Pro	Thr	Ser	Ser	Ser	Thr	Lys	Lys	385	390	395	400
Thr	Gln	Leu	Gln	Leu	Glu	His	Leu	Leu	Leu	Asp	Leu	Gln	Met	Ile	Leu	405	410	415	
Asn	Gly	Ile	Asn	Asn	Tyr	Lys	Asn	Pro	Lys	Leu	Thr	Arg	Met	Leu	Thr	420	425	430	
Phe	Lys	Phe	Tyr	Met	Pro	Lys	Lys	Ala	Thr	Glu	Leu	Lys	His	Leu	Gln	435	440	445	
Cys	Leu	Glu	Glu	Glu	Leu	Lys	Pro	Leu	Glu	Glu	Val	Leu	Asn	Leu	Ala	450	455	460	
Gln	Ser	Lys	Asn	Phe	His	Leu	Arg	Pro	Arg	Asp	Leu	Ile	Ser	Asn	Ile	465	470	475	480
Asn	Val	Ile	Val	Leu	Glu	Leu	Lys	Gly	Ser	Glu	Thr	Thr	Phe	Met	Cys	485	490	495	
Glu	Tyr	Ala	Asp	Glu	Thr	Ala	Thr	Ile	Val	Glu	Phe	Leu	Asn	Arg	Trp	500	505	510	
Ile	Thr	Phe	Cys	Gln	Ser	Ile	Ile	Ser	Thr	Leu	Thr					515	520		